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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,874	12/17/2001	Roy Franklin Quick JR.	PA000310	2739
23696	7590	04/24/2006	EXAMINER	
QUALCOMM, INC 5775 MOREHOUSE DR. SAN DIEGO, CA 92121			POWERS, WILLIAM S	
			ART UNIT	PAPER NUMBER
			2134	

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,874

Applicant(s)

QUICK ET AL.

Examiner

William S. Powers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-14, 16-32 and 34-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14, 16-32 and 34-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

In light of Applicant's amendment, the previous objection to the drawings is withdrawn.

In light of Applicant's amendment, the previous objection to the specification is withdrawn.

The previous objection to claims 5, 15 and 33 is withdrawn by virtue of the cancellation of said claims.

The previous 35 USC 112, 1st paragraph rejection of claims 11, 28 and 29 are withdrawn.

The previous 35 USC 112, 2nd paragraph rejection of claim 29 is withdrawn.

Claim 39 lacks a claim status identifier. Applicant must provide the proper status identifier for claim 39 in the next communication concerning this application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3, 6-9, 11, 13, 16-19, 21-27, 29, 31, 34-35 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein.

As to claims 1, 11, 29 and 37, Wan teaches:

- a. The use of a database that contains information for each mobile subscriber associated with a particular VLR (column 17, lines 1-13).
- b. Maintaining a counter value (column 17, lines 28-40).
- c. Hashing counter value to get a database index or short page identity value (SPI) (column 17, lines 28-40).
- d. Storing a TMSI in said VLR database (column 17, lines 14-22).

Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

As to claim 3, 13 and 31, Wan teaches a counter with a predetermined number of bits (column 17, lines 28-37).

As to claims 26 and 39, Wan teaches the use of a hash function (column 17, lines 23-45).

As to claims 6 and 16, Wan teaches storing identifying numbers in the VLR (column 17, lines 1-5).

As to claim 7, 17 and 22, Wan teaches storing the counter value with the identification numbers (column 17, 23-45).

As to claim 8, 18, 24 and 34, Wan teaches the use of a temporary mobile subscriber (or station) identifier (column 17, lines 14-22).

As to claim 9, 19, 23 and 35, Wan teaches the use of an international mobile subscriber identifier (column 17, lines 1-5).

As to claim 21, Wan teaches:

- a. A mobile switching center (column 17, lines 14-15).
- b. A visitor location register (column 17, lines 1-5).
- c. Storing and assigning identifiers (column 17, lines 1-45).

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- d. Maintaining a counter value (column 17, lines 28-30).
- e. Generating a temporary identifier (column 17, lines 1-45).

Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

As to claim 25, although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation

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procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

As to claim 27, Wan teaches hashing the counter value to get a database index or short page identity value (SPI) (column 17, lines 28-40).

As to claim 38, Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, but the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

5. Claims 2, 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein in further view of U.S. Patent No. 5,123,111 to Delory et al. (hereto referred to as Delory).

As to claims 2, 12 and 30, Wan implicitly teaches a limited number of mobile subscribers in a service area because the number of TMSI is limited to a 32-bit number (column 17, lines 14-15), but does not expressly mention the actual number of users.

Delory teaches the capacity of up to 256,000 users in a service area depending on the addressing mode (column 5, line 57-column 6, line 11). In this way, the actual number of remaining available addresses is known.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the predetermined number of users of Pfundstein. In this way, the actual number of remaining available addresses is known.

6. Claims 4, 14 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein in further view of "Handbook of Applied Cryptography" by Menezes et al. (hereto referred to as Menezes).

As to claims 4, 14 and 32, Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, but the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the

counter of the applicant, but does not expressly mention the bit length of the encoding method.

Menezes teaches the use of a block cipher "which maps n-bit plaintext blocks to n-bit cipher text blocks" (page 224, 4th paragraph) in order to avoid data expansion.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan and Pfundstein with the block cipher of Menezes in order to avoid data expansion.

7. Claims 10, 20 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein in further view of "Data Structures and Other Objects Using C++" by Main et al. (hereto referred to as Main).

As to claims 10, 20 and 36, Wan teaches the use of a hash function to find an index in the VLR to place the information of the mobile subscriber (column 17, lines 23-45), but does not expressly state that the VLR starts at that index.

Main teaches the general use of a hash function and that the index obtained from said hash function is the starting point of any search within a database (page 571) in order to increase the efficiency of the database.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the index search of Main in order to increase the efficiency of the database.

Response to Arguments

8. Applicant's arguments filed 2/10/2006 have been fully considered but they are not persuasive.

Applicant argues that hashing a counter value cannot be found in Wan. Wan uses a 6-bit value as a Short Page Identifier (SPI) that is stored in the VLR as a reference to the TMSI. Wan further describes applying transforms, such as hashing, to the 6-bit value and using an incremental counter to generate that value. (Wan, column 17, lines 23-45). It is clear from the Wan excerpt that the SPI can be generated from several different sources: a part of the IMSI, a counter value, a manipulated random number, ... In all of these instances the SPI is the same length, 6-bits. Wan uses transforms and modulo operations to randomize the SPI and obscure the source of the SPI.

As to the Applicant's argument that "neither Wan nor Pfundstein teaches any encryption of any parameter," Applicant is directed to Pfundstein, column 3, line 62-column 4, line 35. Pfundstein encodes (encrypts) various parameters, including incremental ones, together to form the TMSI. The GP-IX is incremented so that each generated TMSI is unique.

Conclusion


9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William S. Powers whose telephone number is 751 272 8573. The examiner can normally be reached on m-f 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on 571 272 6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William S. Powers
Examiner
Art Unit 2134

Jacques P. Paus
 JACQUES H. LOUIS-JACQUES
 FEBRUARY EXAMINER